



Department of Defense
Conservation Conference 2004
August 22–27, Savannah, Georgia

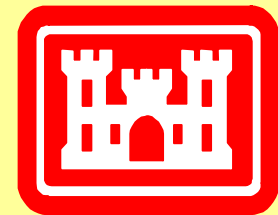
Sponsored by the Office of the
Deputy Under Secretary of Defense
(Installations & Environment)



Protective Design

Force Protection Standards and Historic Preservation Policy

Daniel G. Kurmel, RA
Protective Design Center
Omaha, NE



**U.S Army Corps
of Engineers®**

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 01 AUG 2004		2. REPORT TYPE N/A		3. DATES COVERED -	
4. TITLE AND SUBTITLE Protective Design Force Protection Standards and Historic Preservation Policy				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S Army Corps of Engineers; Protective Design Center Omaha, NE				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release, distribution unlimited					
13. SUPPLEMENTARY NOTES See also ADM002111. Department of Defense Conservation Conference. Held in Savannah, Georgia on August 22-27, 2004, The original document contains color images.					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UU	18. NUMBER OF PAGES 69	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

Integrating Natural and Cultural Resources with Readiness

Integrating Historic Structures with Readiness

Integrating Historic Structures with Security

Agenda

- Security as a Priority
- Historical Precedence
- Threat Basis
- Introduction to Criteria: UFC
- Examples of Integration

Agenda

- Security as a Priority
- Historical Precedence
- Threat Basis
- Introduction to Criteria: UFC
- Examples of Integration

Beirut Marine Barracks 1983



Khobar Towers 1996



New York WTC 9-11



Pentagon after 9-11



WHY WE ARE HERE

OCT 1983	MARINE BARRACKS BEIRUT, LEBANON	243
DEC 1988	PAN AM FLT 103 LOCKERBIE, SCOTLAND	244
FEB 1993	WORLD TRADE CENTER NYC, NY	6
JUN 1996	KHOBAR TOWERS DHAHRAN, SA	19
AUG 1998	US EMBASSIES KENYA/TANZANIA	224
OCT 2000	USS COLE ADEN, YEMEN	17
SEP 11 TH 2001	WORLD TRADE CENTER NYC, NY	3000 +
	PENTAGON WASHINGTON DC	
	UNITED AIRLINES FLT 93	

PKP

CO₂

2003

3

FFFF
STN 4

WHY WE ARE HERE

OCT 1983	MARINE BARRACKS BEIRUT, LEBANON	243
DEC 1988	PAN AM FLT 103 LOCKERBIE, SCOTLAND	244
FEB 1993	WORLD TRADE CENTER NYC, NY	6
JUN 1996	KHOBAR TOWERS DHAHRAN, SA	19
AUG 1998	US EMBASSIES KENYA/TANZANIA	224
OCT 2000	USS COLE ADEN, YEMEN	17
SEP 11 TH 2001	WORLD TRADE CENTER NYC, NY	3000 +
	PENTAGON WASHINGTON DC	
	UNITED AIRLINES FLT 93	

Agenda

- Security as a Priority
- **Historical Precedence**
- Threat Basis
- Introduction to Criteria: UFC
- Examples of Integration













Agenda

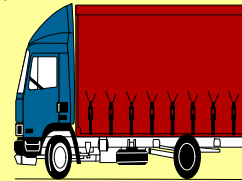
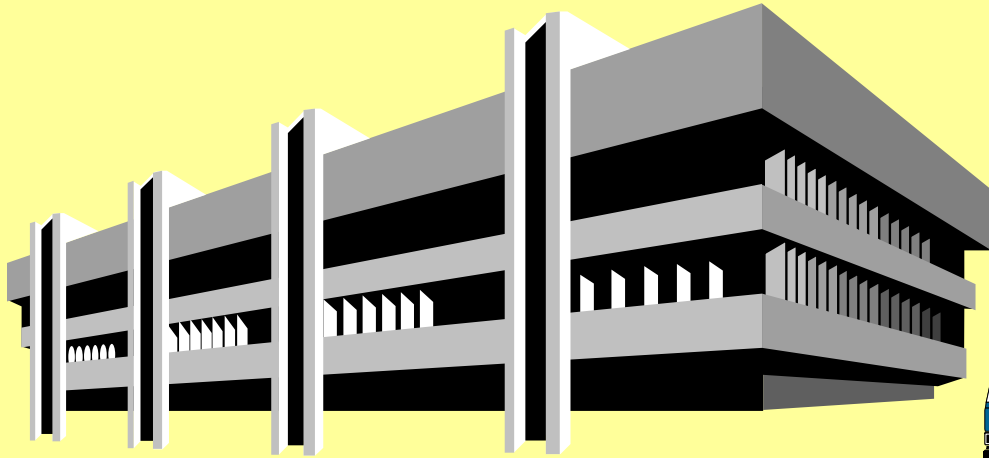
- Security as a Priority
- Historical Precedence
- **Threat Basis**
- Introduction to Criteria: UFC
- Examples of Integration



Vehicle Bomb

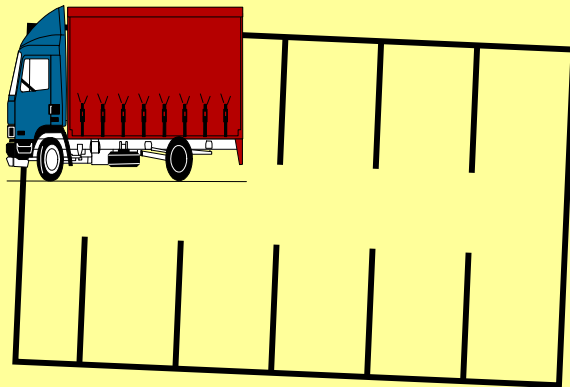


Stationary vs. Moving Vehicle Bombs



Moving vehicle
bomb

Stationary vehicle
bomb



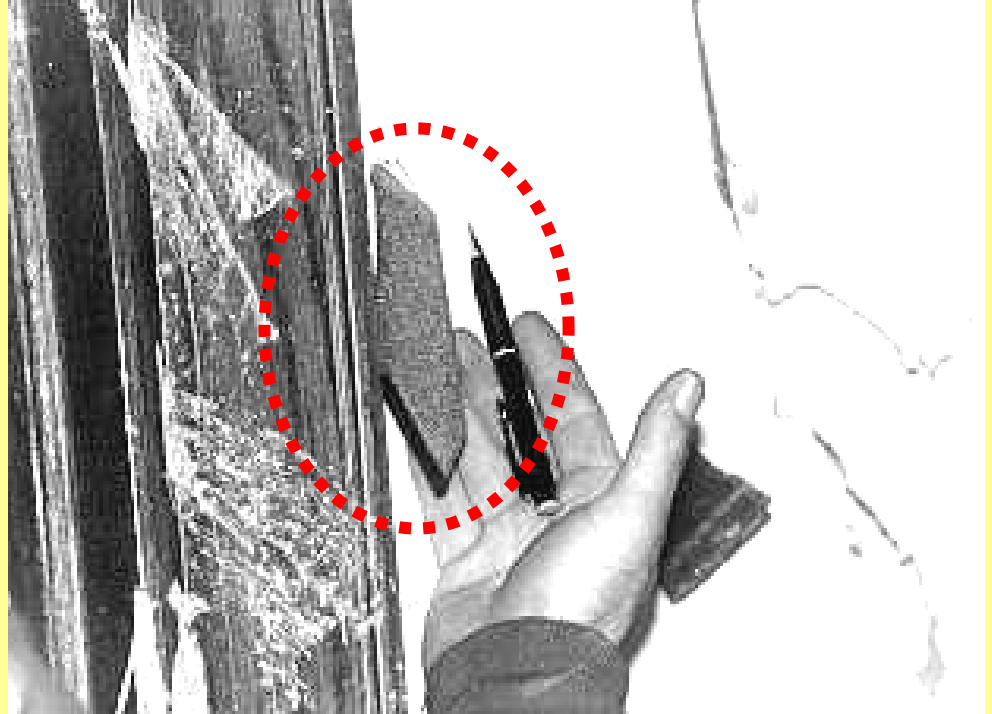
The vast majority of vehicle
bombs have been of the
stationary variety

Glass Fragments in a Blast



Minimize
fragments as
first step in
protection

Glass Fragment Hazards



**Historically speaking, glazing
has caused about 85% of
injuries in blast events**

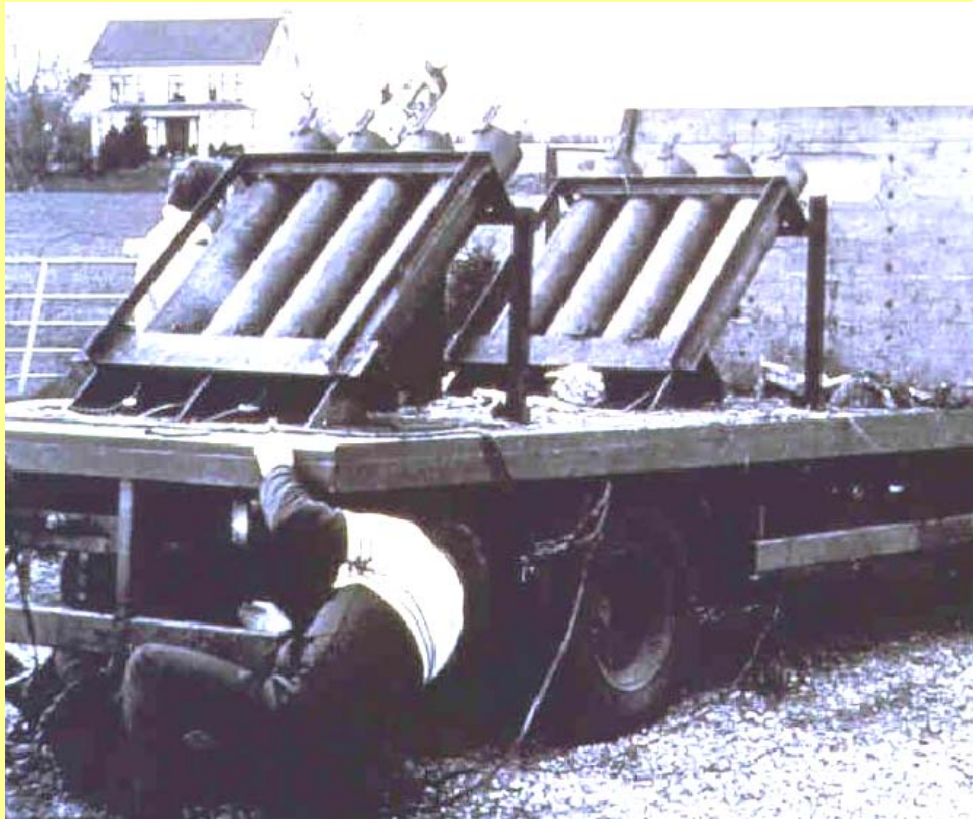
Placed Bombs



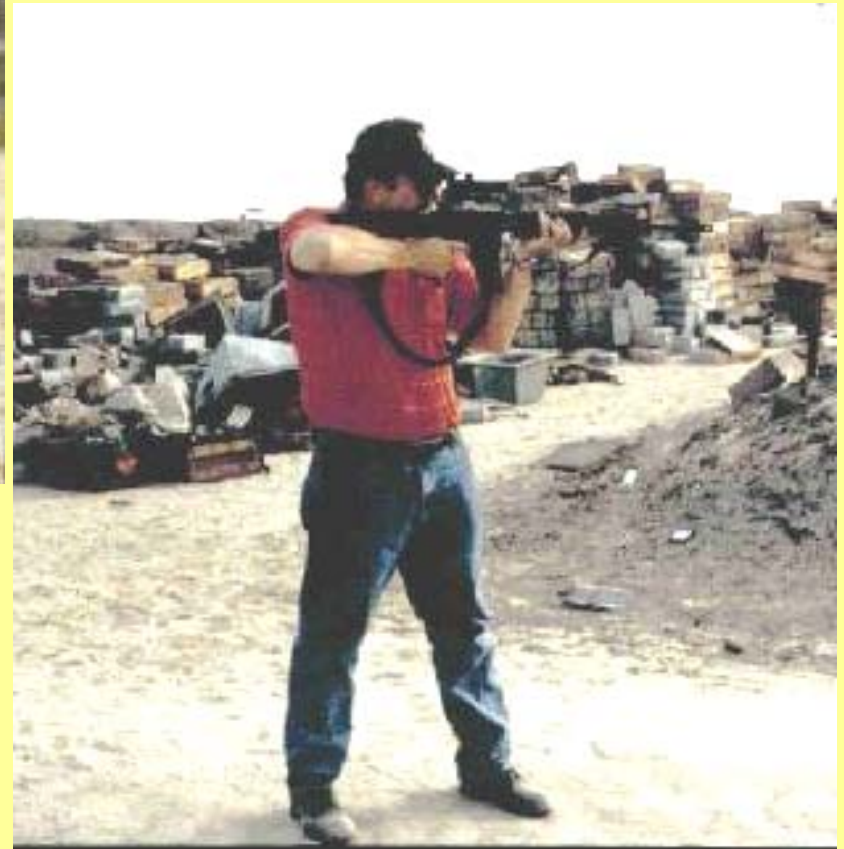
Mail and Supplies Bomb



Indirect Fire Weapons



Direct Fire Weapons



Structural Fire Damage



Chem/Bio Attacks



Agenda

- Security as a Priority
- Historical Precedence
- Threat Basis
- Introduction to Criteria: UFC
- Examples of Integration

DoD Minimum Antiterrorism Standards for Buildings



**US Army Corps
of Engineers®**

**U.S. Army Corps of Engineers Protective Design Center
Co-chair, DoD Security Engineering Working Group**

Intent

- Provide appropriate, implementable, and enforceable protection for all inhabited DoD buildings where there is no known terrorist threat
- Where minimum standoff distances can be met conventional construction is adequate
- Where standoff distance cannot be met, comparable protection must be provided through design adjustment
- Minimum standards will provide:
 - Reduced risk of mass casualties due to explosive event
 - Minimized collateral damage from explosives effects and fragmentation
 - Facilitation of future upgrades and increases in Force Protection Condition

Contents of Standards

UFC 4-010-01
8 October 2003

UNIFIED FACILITIES CRITERIA (UFC)

DoD MINIMUM ANTITERRORISM STANDARDS FOR BUILDINGS



DISTRIBUTION STATEMENT A: Approved for Public Release;
Distribution is unlimited.

- Chapter 1: Introduction
- Chapter 2: Philosophy, Design Strategies, and Assumptions
- Appendix A: Definitions
- Appendix B: DoD Antiterrorism Standards for New and Existing Buildings
- Appendix C: Recommended Additional Antiterrorism Measures for New and Existing Buildings
- Appendix D: DoD Antiterrorism Standards for Expeditionary and Temporary Structures

Applicability

- *All* new inhabited DoD buildings - regardless of appropriation
- *All* existing inhabited DoD buildings when triggered
 - Renovations, modifications, repairs, and restorations where costs exceed 50% of replacement cost
 - Conversions of use
 - Planned glazing replacement projects
 - New portions of building additions and existing building if addition is 50% of gross area
- Leased buildings where DoD personnel occupy at least 25% of net interior useable space
- Expeditionary and temporary buildings

Historic Preservation Impacts

1-9 HISTORIC PRESERVATION COMPLIANCE FOR IMPLEMENTATION OF ANTI-TERRORISM STANDARDS.

1-9.1 **Security and Stewardship.** The Department of Defense remains the lead federal agency in balancing security threats with the protection of historic properties. The Department of Defense abides by federal legislation on protecting cultural resources, and issues its own complementary policies for stewardship. Historic properties and archaeological sites on military land are protected with other facilities from terrorism where there is a perceived threat to people and critical resources.

1-9.2 **Compliance with Laws.** In the wake of terrorist attacks against the armed forces and civilian personnel, the [REDACTED]

[REDACTED] to include the National Historic Preservation Act and the Archaeological Resources Protection Act. Installation personnel need to determine possible adverse effects upon an historic structure and/or archaeological resource prior to anti-terrorism standard undertakings and consult accordingly. Personnel at installations abroad should coordinate with the host nation regarding possible adverse effects to cultural resources.

1-9.3 **Compliance with DoD Standards.** [REDACTED]

[REDACTED] Federal agencies are always the decision-maker in the Section 106 process of the National Historic Preservation Act. [REDACTED]

Preservation issues need to be quickly and effectively resolved, so as not to obstruct force protection efforts.

Baseline Threats

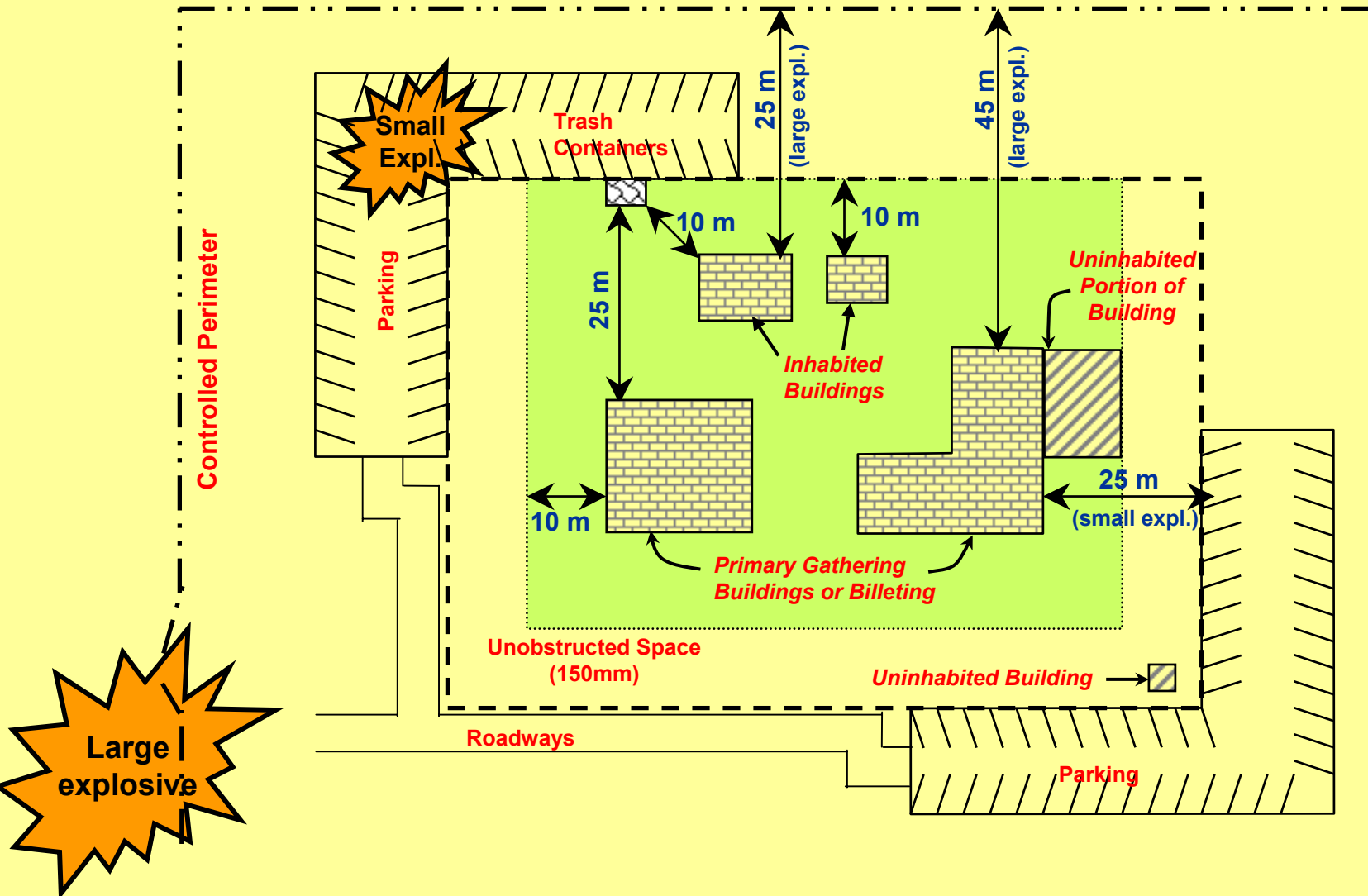
- Vehicle bombs
 - Cars and light trucks
 - Small waterborne vessels
- Placed bombs
- Mail bombs
- Indirect fire weapons
- Direct fire weapons
 - Small arms
 - Shoulder fired rockets
- Fire
- Chemical, biological, and radiological agents

Design Strategies

- Maximize standoff distance
- Prevent building collapse
- Minimize hazardous flying debris
- Provide effective building layout
- Limit airborne contamination
- Provide mass notification
- Facilitate future upgrades

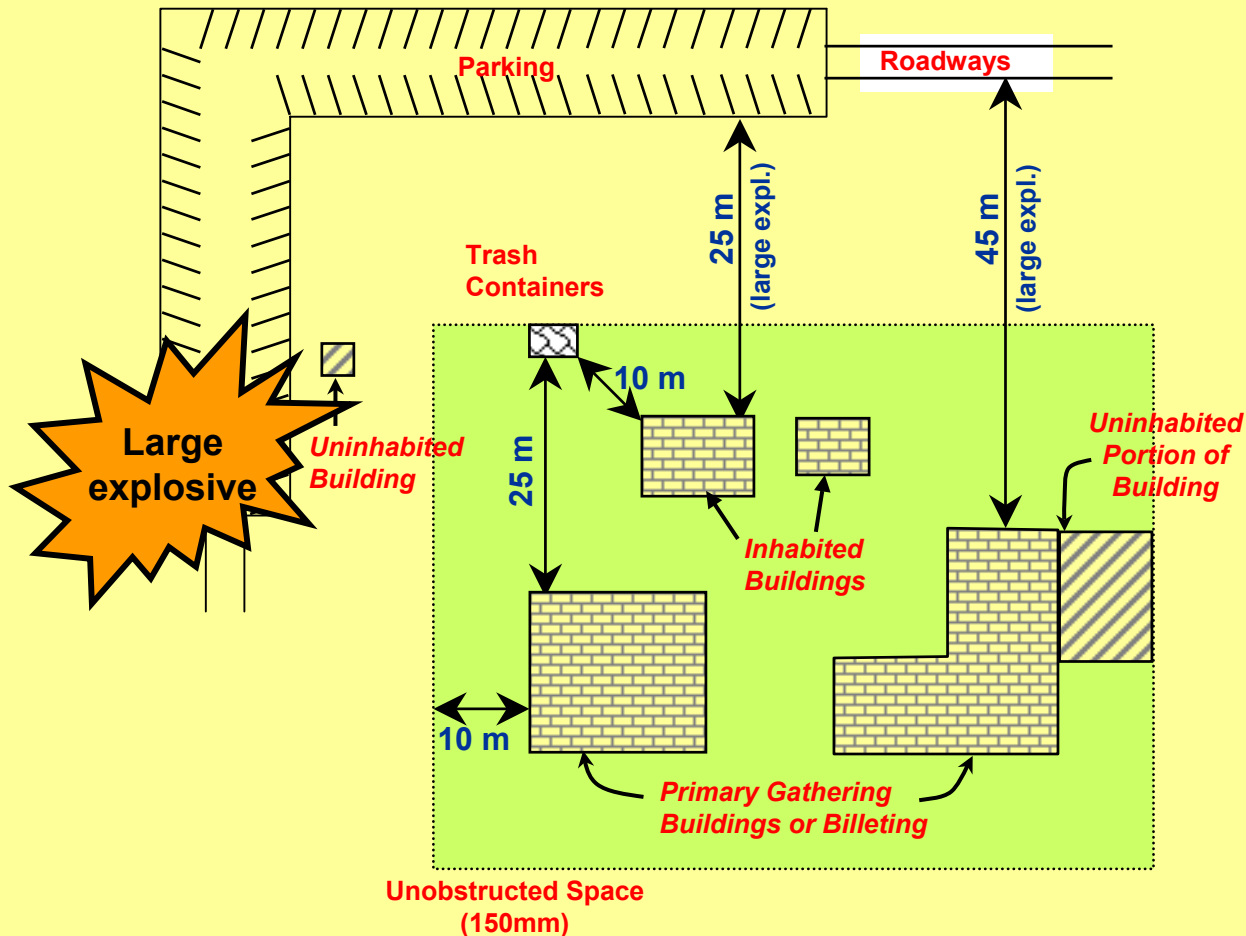
Sitework Standards

(when a controlled perimeter is used)

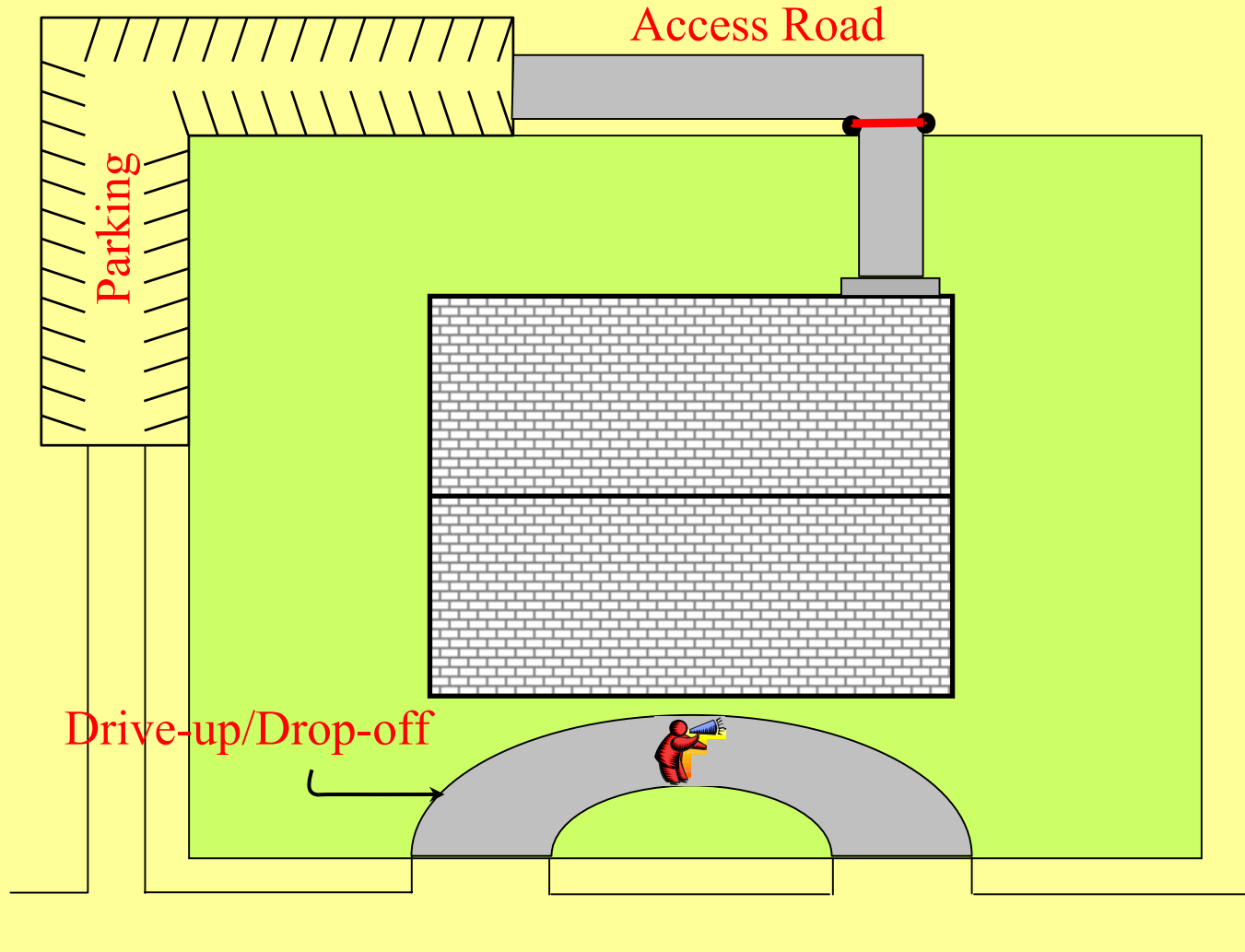


Sitework Standards

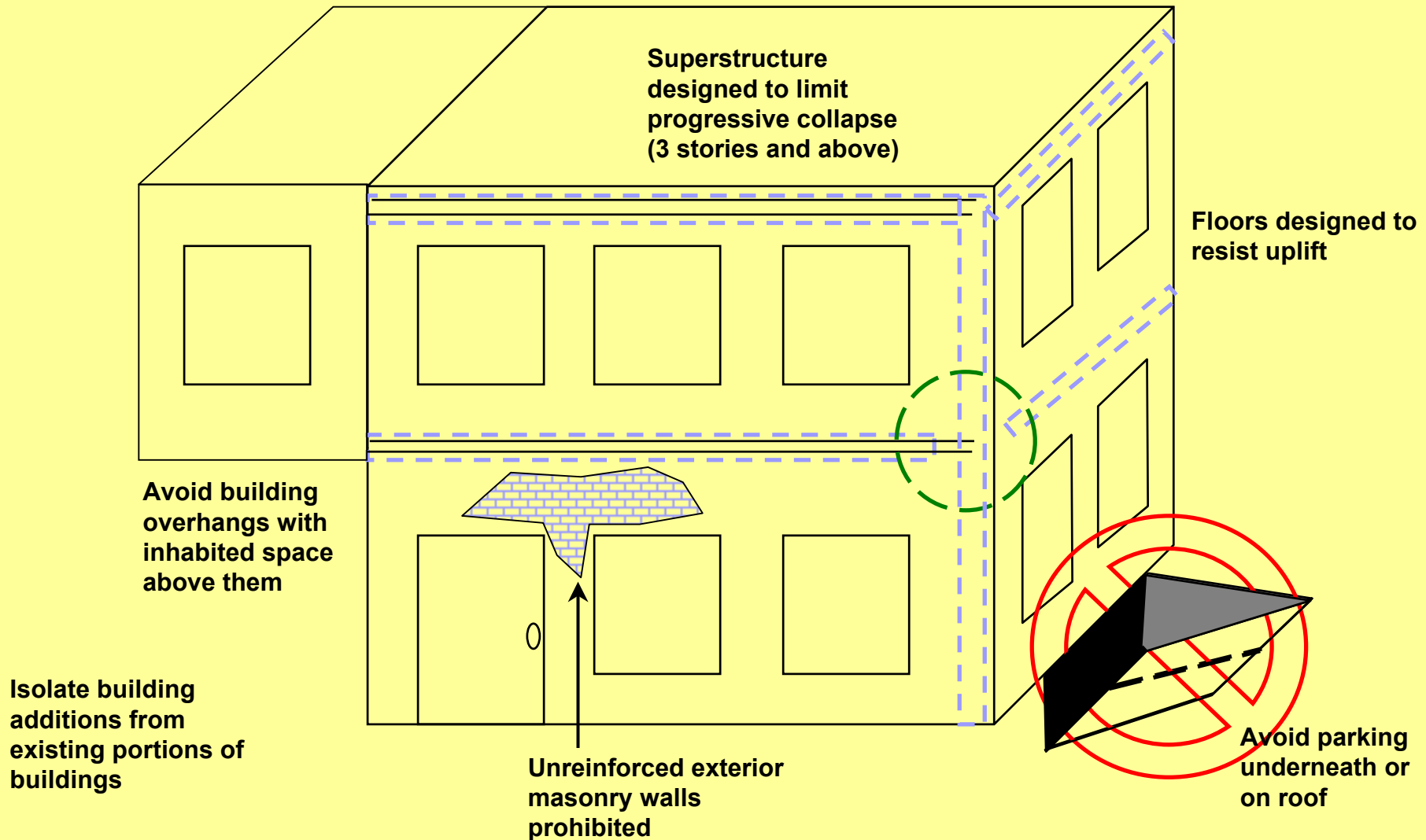
(when a controlled perimeter is not available)



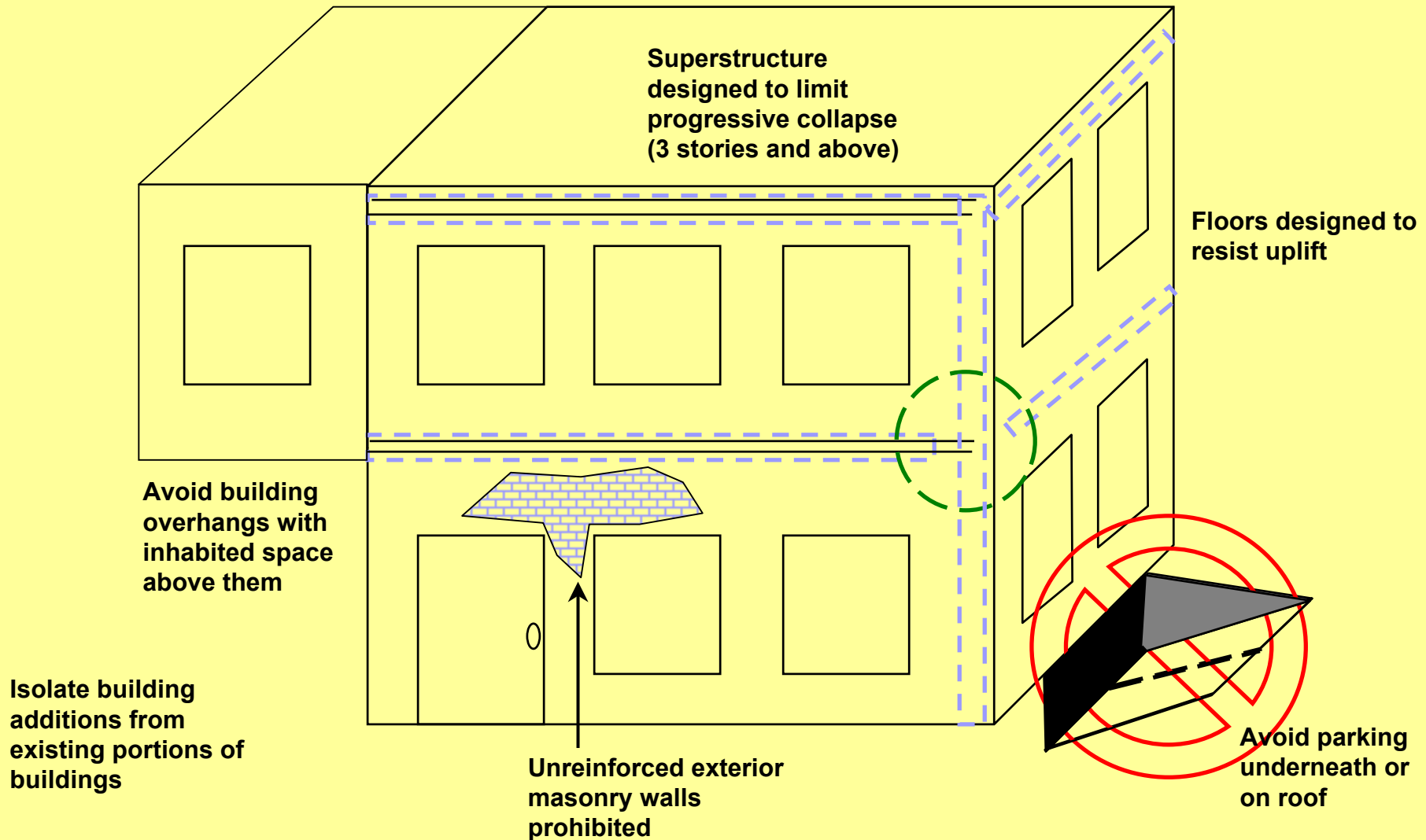
Other Site Planning Issues



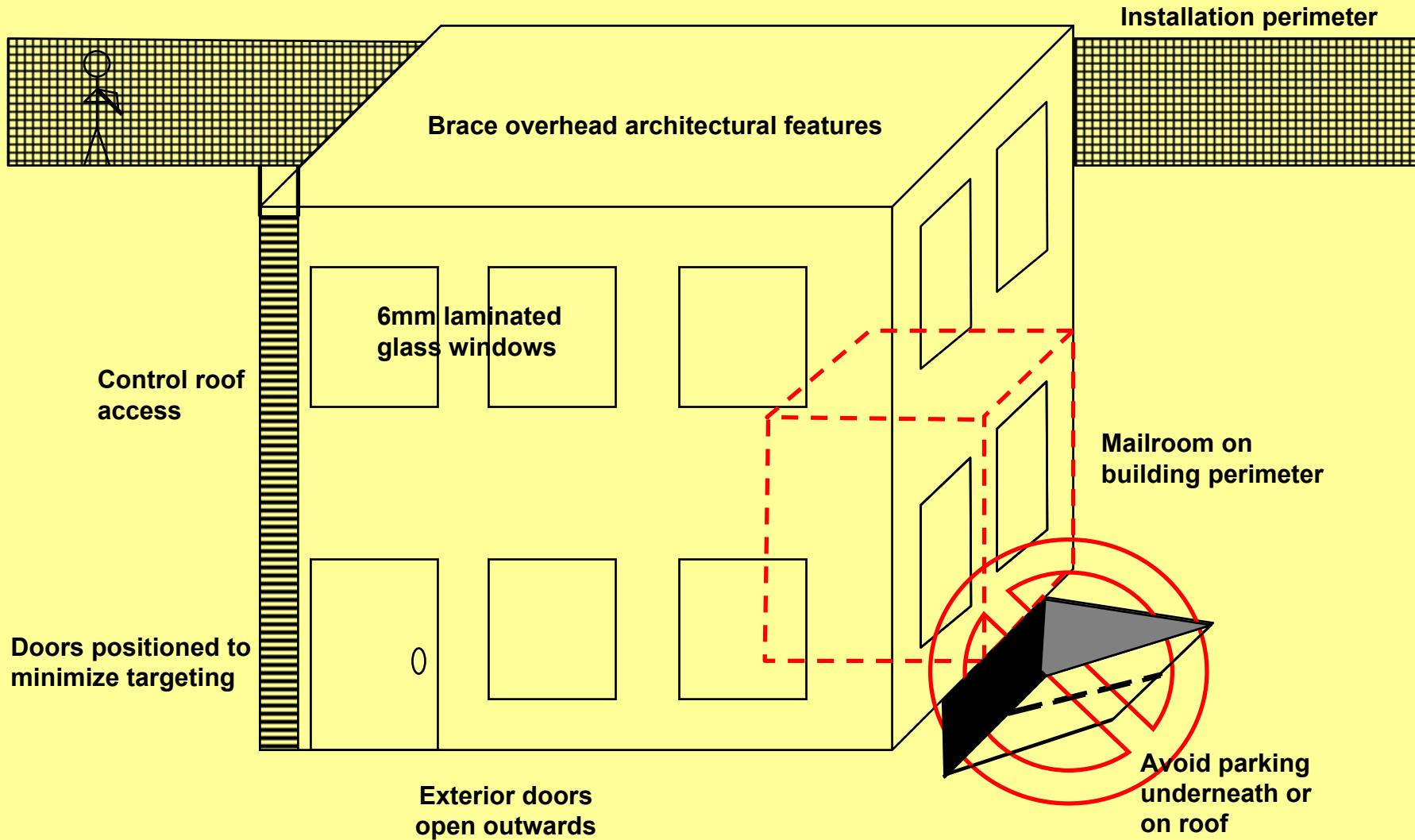
Structural Design



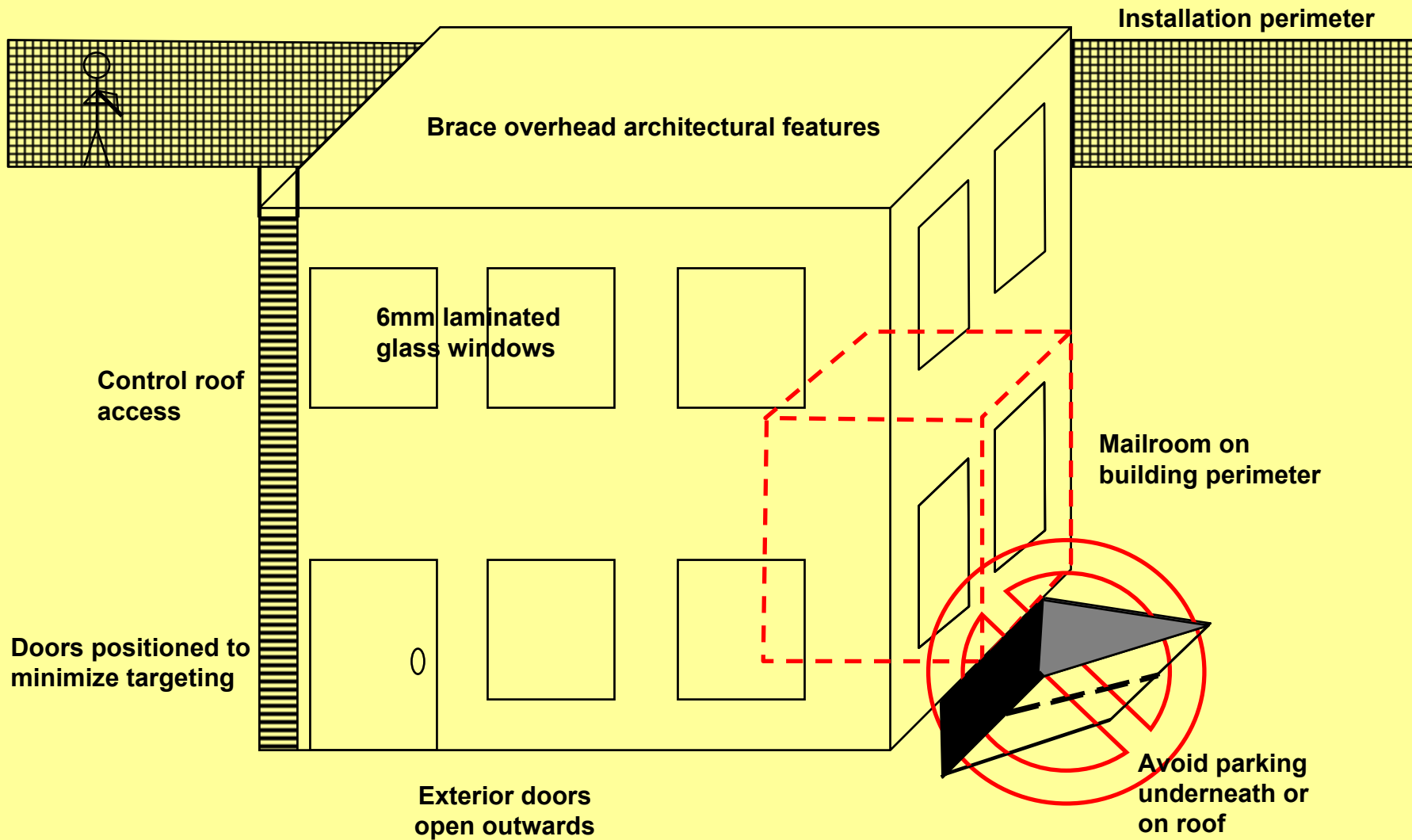
Structural Design



Architectural Design



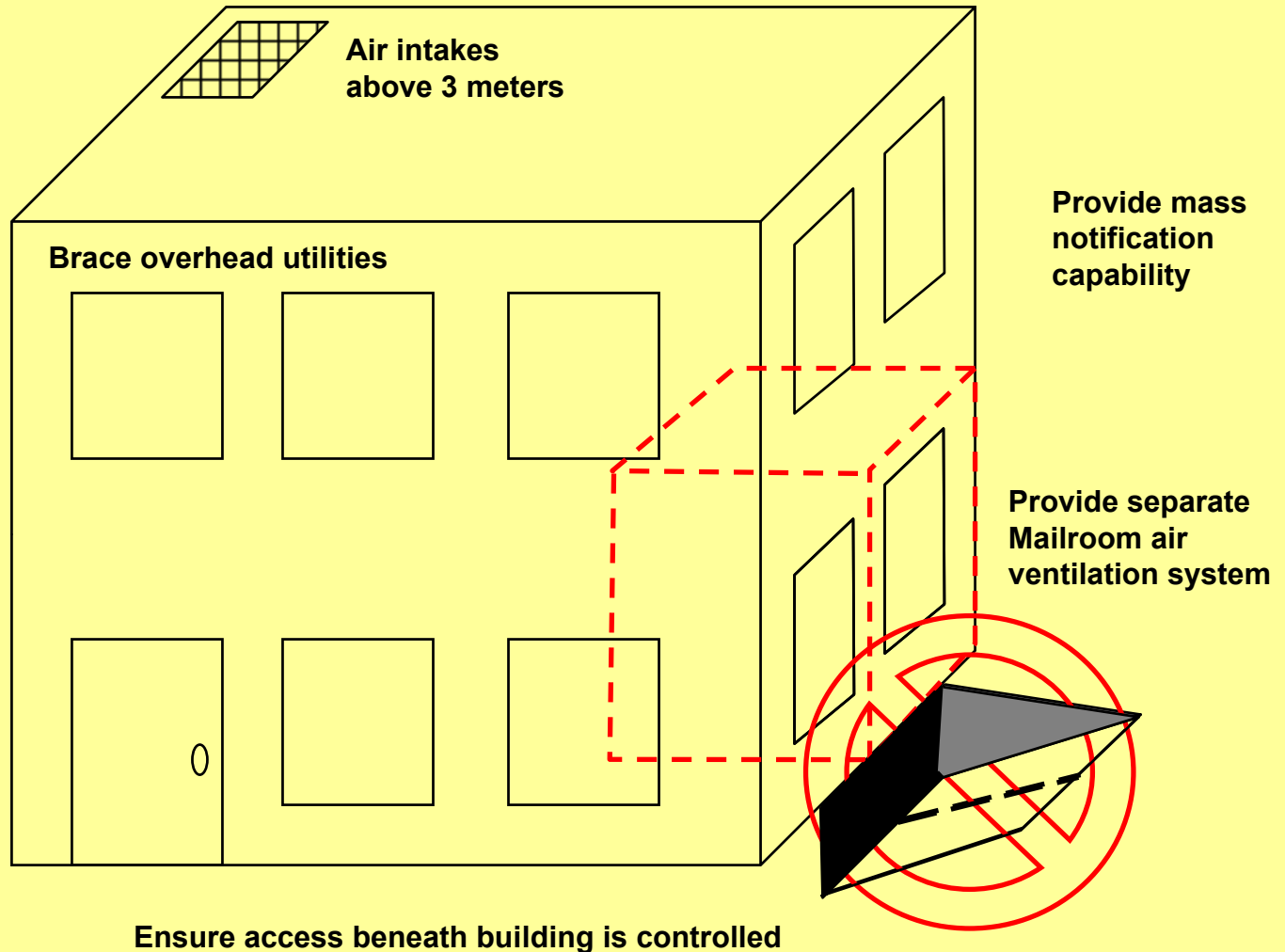
Architectural Design



Electrical and Mechanical Design

- Avoid exterior walls for critical utilities
- Do not collocate redundant utilities
- Locate emergency backups away from backed up systems

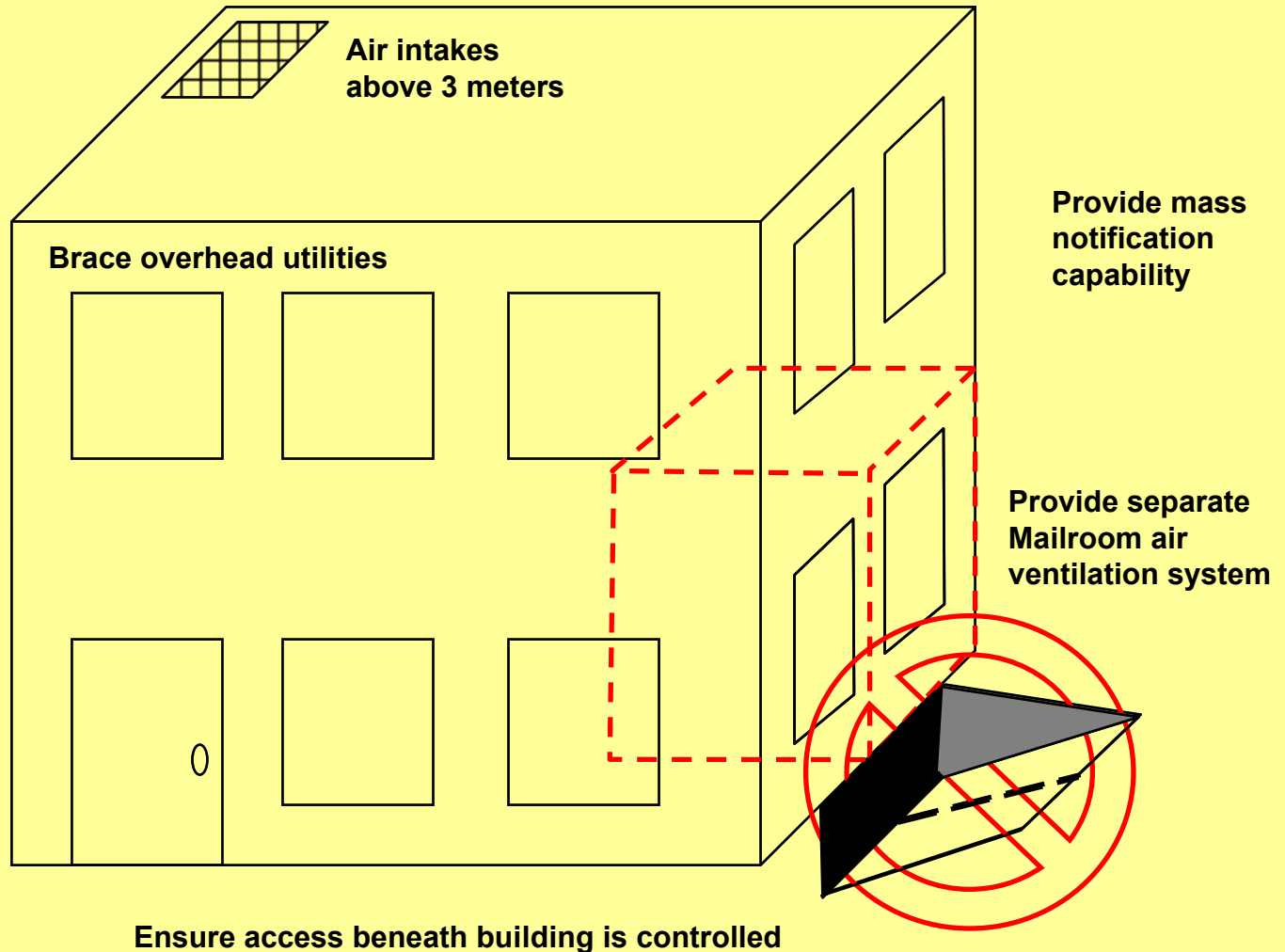
Emergency shutoff of air distribution



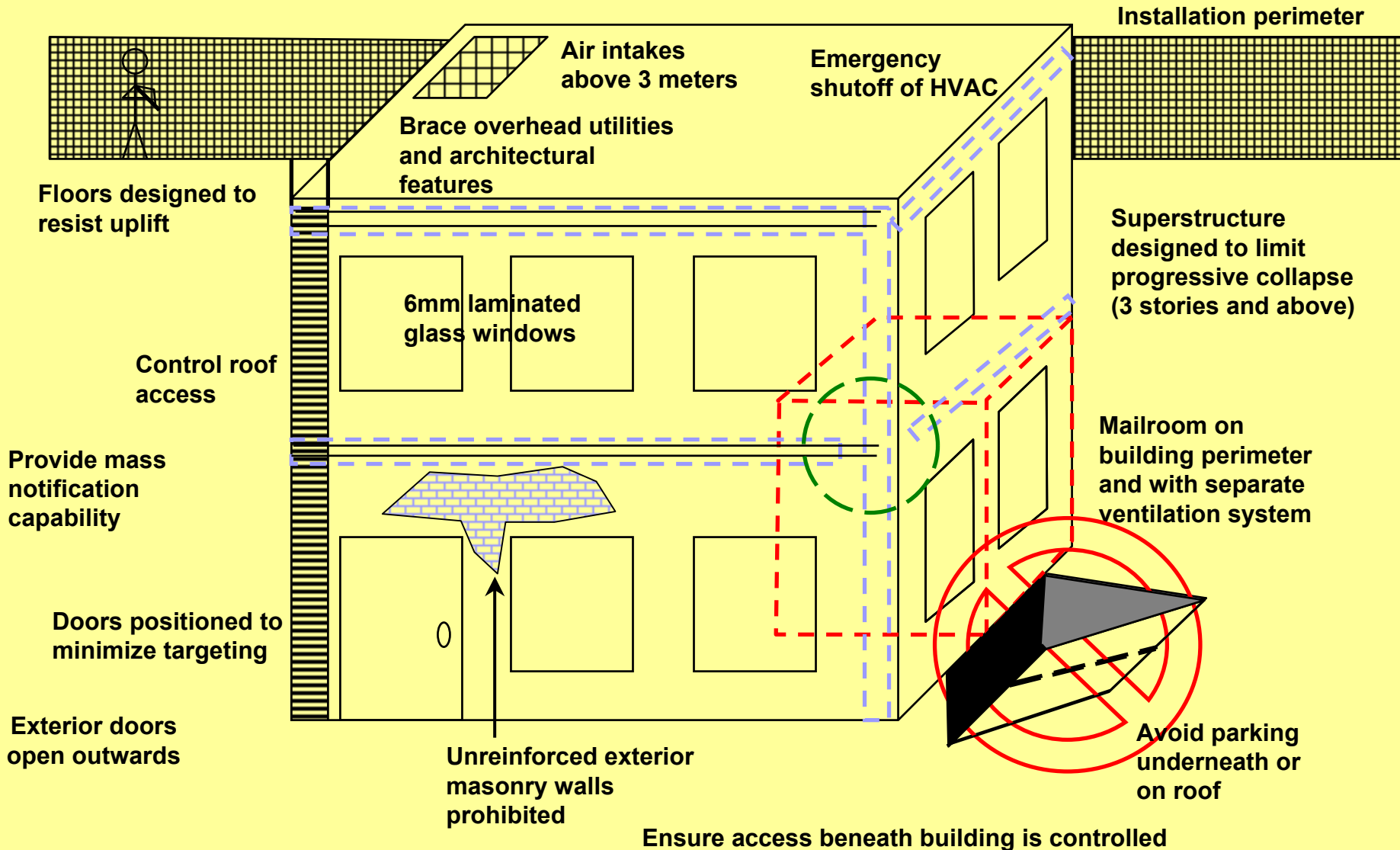
Electrical and Mechanical Design

- Avoid exterior walls for critical utilities
- Do not collocate redundant utilities
- Locate emergency backups away from backed up systems

Emergency shutoff of air distribution



Building Standards Summary



Recommended Additional AT Measures for New and Existing Buildings

Site Planning

- Recommendation 1: Vehicle access points
- Recommendation 2: High-speed vehicle approaches
- Recommendation 3: Vantage points
- Recommendation 4: Drive-up/drop-off points
- Recommendation 5: Building locations
- Recommendation 6: Railroad location
- Recommendation 7: Access control for family housing
- Recommendation 8: Standoff for family housing
- Recommendation 9: Minimize secondary debris

Recommended Additional AT Measures for New and Existing Buildings

Structural and Architectural Design

- Recommendation 10: Structural redundancy
- Recommendation 11: Internal circulation
- Recommendation 12: Visitor control
- Recommendation 13: Asset location
- Recommendation 14: Room layout
- Recommendation 15: External hallways
- Recommendation 16: Windows

Agenda

- Security as a Priority
- Historical Precedence
- Threat Basis
- Introduction to Criteria: UFC
- Examples of Integration

Examples



Building Frame Retrofit



Murrah Bldg, OK City (95)





COOPERATIVE HOUSE

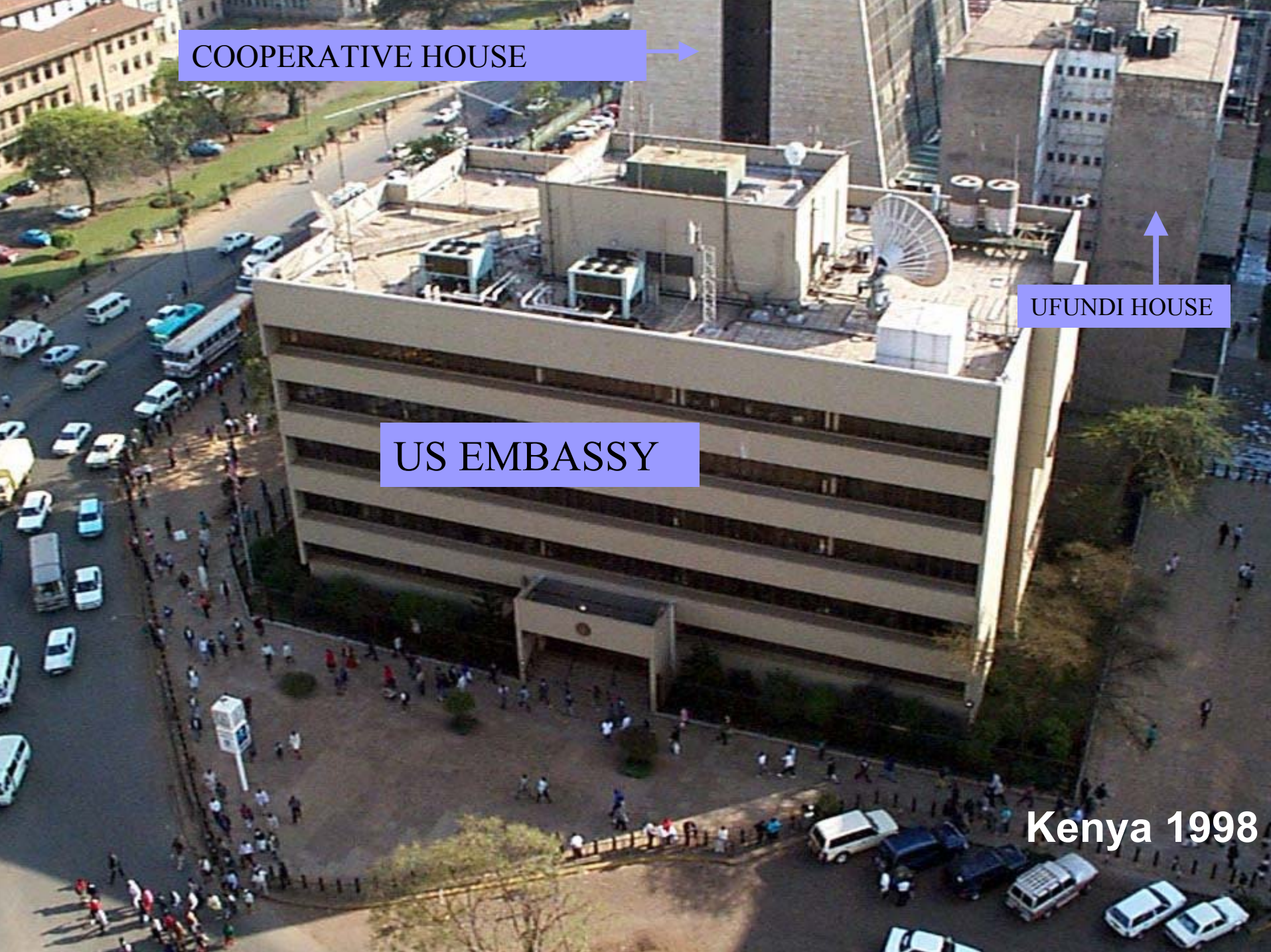


UFUNDI HOUSE



US EMBASSY

Kenya 1998



UFUNDI HOUSE (8 STORIES)



Option: Move out of Historic Areas



Blast Glazing Retrofit



Ballistic Glazing Retrofit



Change Room Arrangement



STOP
IN THE
NAME OF
HUMANITY



A Final Thought

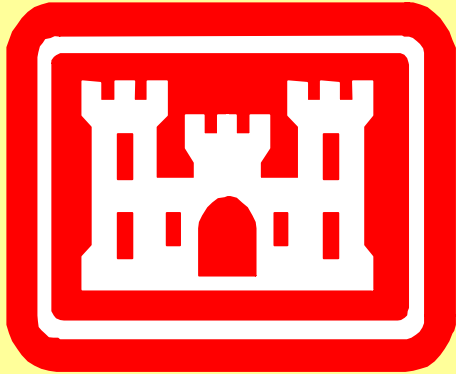
*If we always do
what we have always done,*

*we will always get
what we have
always gotten*

-

anonymous





The U.S. Army Corps of Engineers *Protective Design Center*

Address:

**U.S. Army Engineer District, Omaha
ATTN: CENWO-ED-ST
12565 West Center Road
Omaha, NE 68144**

Telephones:

**Voice: (402) 221-3073
FAX: (402) 221-4315
Hotline: (402) 221-3151**

E-Mail:

daniel.g.kurmel@usace.army.mil

Internet Home Page:

<https://pdmcx.pecp1.nwo.usace.army.mil/>

Key Definitions in the UFC:

- **DoD building:** Any building or portion of a building (permanent, temporary, or expeditionary) owned, leased, privatized, or otherwise occupied, managed, or controlled by or for DoD.
- **Inhabited building:** Buildings or portions of buildings routinely occupied by 11 or more DoD personnel with a personnel density of greater than one person per 40 gross square meters. This density generally excludes industrial, maintenance, and storage facilities, except for more densely populated portions of those buildings, such as administrative areas.
- **Primary gathering buildings:** Inhabited buildings routinely occupied by 50 or more DoD personnel and family housing with 13 or more family units per building.
- **Billeting:** Any building or portion of a building in which 11 or more unaccompanied DoD personnel are routinely housed, including Temporary Lodging Facilities and military family housing permanently converted to unaccompanied housing.

Mailroom Design



Progressive Collapse

